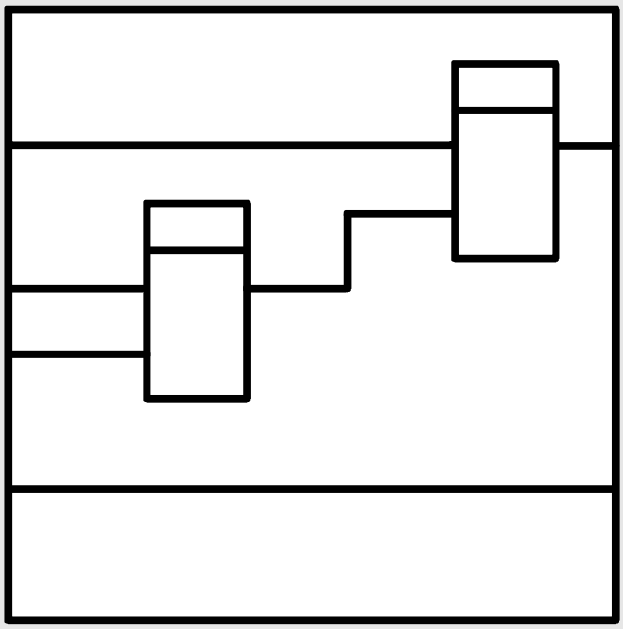
SIMADYN D
Digital Control System

User Manual

Carrier module CS7



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User Manual, Carrier module CS7

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1	Carrier module CS7	08.94
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We have checked the contents of this Manual to ensure that they coincide with the described hardware and software. However, deviations cannot be completely ruled-out, so we cannot guarantee complete conformance. However, the information in this document is regularly checked and the necessary corrections included in subsequent editions. We are thankful for any recommendations or suggestions.

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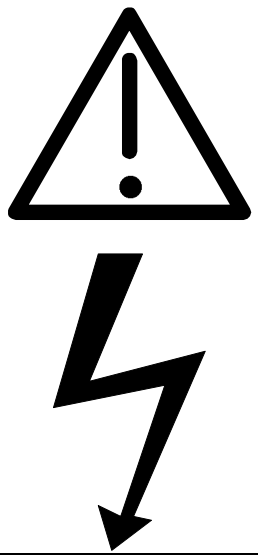
N O T E !

The information in this Manual does not purport to cover all details or variations in equipment, nor to provide for every possible contingency to be met in connection with installation, operation or maintenance.

Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, please contact your local Siemens office.

Further, the contents of this Manual shall not become a part of or modify any prior or existing agreement, committment or relationship. The sales contract contains the entire obligation of Siemens. The warranty contained in the contract between the parties is the sole warranty of Siemens. Any statements contained herein do not create new warranties nor modify the existing warranty.

Warning information



W A R N I N G !

Electrical equipment has components which are at dangerous voltage levels.

If these instructions are not strictly adhered to, severe bodily injury and material damage can result.

Only appropriately qualified personnel may work on this equipment or in its vicinity.

This personnel must be completely knowledgeable about all the warnings and service measures according to this User Manual.

The successful and safe operation of this equipment is dependent on proper handling, installation, operation and maintenance.

Definitions

* **QUALIFIED PERSONNEL**

For the purpose of this User Manual and product labels, a „Qualified person“ is someone who is familiar with the installation, mounting, start-up and operation of the equipment and the hazards involved. He or she must have the following qualifications:

1. Trained and authorized to energize, de-energize, clear, ground and tag circuits and equipment in accordance with established safety procedures.
2. Trained in the proper care and use of protective equipment in accordance with established safety procedures.
3. Trained in rendering first aid.

* **DANGER**

For the purpose of this User Manual and product labels, „Danger“ indicates death, severe personal injury and/or substantial property damage will result if proper precautions are not taken.

* **WARNING**

For the purpose of this User Manual and product labels, „Warning“ indicates death, severe personal injury or property damage can result if proper precautions are not taken.

* **CAUTION**

For the purpose of this User Manual and product labels, „Caution“ indicates that minor personal injury or material damage can result if proper precautions are not taken.

* **NOTE**

For the purpose of this User Manual, „Note“ indicates information about the product or the respective part of the User Manual which is essential to highlight.

C A U T I O N !

This board contains components which can be destroyed by electrostatic discharge. Prior to touching any electronics board, your body must be electrically discharged. This can be simply done by touching a conductive, grounded object immediately beforehand (e.g. bare metal cabinet components, socket protective conductor contact).

W A R N I N G !

Hazardous voltages are present in this electrical equipment during operation.

Non-observance of the safety instructions can result in severe personal injury or property damage.

It is especially important that the warning information in all of the relevant Operating Instructions are strictly observed.

1. Ordering information

CS7: 6DD1662-0AB0	Carrier module CS7

2. Description

The CS7 module can accomodate a maximum of three interface modules. Equipped with these boards, it is a universal communications board for SIMADYN D. Communications between the processors in the subrack and external systems is processed via this board. Thus, processor boards are relieved of communication tasks.

CS7 is a passive peripheral module. It has an L bus connection, and can therefore be used in both large and small subracks. A maximum of three interface boards can be inserted in slots X01, X02 and X03. The connection between interface boards and carrier module is realized via the CS7- SS4/SS5 parallel interface. Data transfer between the processor- and the interface boards is realized via a dual port RAM with a 16 kbyte memory per slot.

The CS7 can be used together with 32-bit processors, 16-bit processors, or a mixture of both.

A double test socket and double LED is assigned to each of the three module slots:

Slot	LEDs	Test socket
X01	H10 / H11	X10 / X11
X02	H20 / H21	X20 / X21
X03	H30 / H31	X30 / X31

The LEDs are controlled by the interface boards. The function is described in the appropriate module Instruction Manual

In addition to the reset function using the power supply, a local reset can be initiated by short circuiting the two test sockets at the processor of the appropriate interface board. This function has no effect on the other subracks. It is used to test the software and for troubleshooting but during normal operation it is not permissible that a reset is initiated at these sockets.

3. Module design

The module provides the following hardware components.

Local bus connection (L bus)
3 slots for interface boards
16 kbyte dual port RAM per interface board
2 LEDs per slot to indicate the interface board operating status
Local reset on the interface boards
Transfers the basic sampling time from the local bus to the interface boards
Transfers the clock interrupt from the interface boards to the local bus

4. Interfaces

4.1. Local bus connection

The connection to the subrack backplane bus is established via the 96-pin plug connector at slot X2. In addition to the data-, address- and control bus, the +5V, +15V and -15V power supplies are also established via this connection.

4.2. Parallel interface to the interface module

The connection from the carrier module to the interface boards is realized via the 48-pin socket connectors X01, X02 and X03. In addition to the data-, address- and control bus, the +5V, +15V and -15V power supplies are also established via this connection.

5. Application information

The communications board can be used in both small and large subracks and it occupies 2 slots.

A maximum of three interface boards can be inserted. The interface board configuration is defined in the configuring instructions. Unused slots must be provided with slot covers.

The clock interrupt on the L bus can be initiated from the interface boards. However, when configuring the system, it must be ensured that only one interface module in the subrack executes this function.

To ensure perfect operation, even during start-up, the board must be screwed tightly into the subrack.

If the board is inserted in an adapter, the front panel must be connected to the rack housing through a short cable.

It is not permissible that the board is inserted or withdrawn under voltage.

6. Additional components

Interface boards:

Designation	MLFB
Interface board SS4	6DD1688-0AD0
Interface board SS5	6DD1688-0AE0

7. Technical data

INSULATION GROUP	A acc. to VDE 0110 Paragraph 13, Group 2 at 24 V DC, 15 V DC, 5 V DC
AMBIENT TEMPERATURE	0 to +55 degrees C with self ventilation
STORAGE TEMPERATURE	-40 to + 70 degrees C
HUMIDITY RATING	F acc. to DIN 40040
ALTITUDE RATING	S acc. to DIN 40040
MECHANICAL STRESSING	Mounted in stationary but not necessarily vibration-free equipment
PACKAGING SYSTEM	ES 902 C
DIMENSIONS	220 * 233:4 mm
BOARD WIDTH	2 slots in the subrack
WEIGHT	0.5 kg
CURRENT DRAIN	P5 0.5 A (without interface modules)

8. Connector assignment of the interfaces

8.1. Assignment of the L bus connection X2

X2 (96-pin plug connector to the backplane bus)

Pin	A	B	C
1	P5	P5	P5
2	----	AB20	AB22
3	----	AB21	AB23
4	+15V	+15V	+15V
5	----	-15V	-15V
6	L_LOCK	----	L_CSINI
7	----	----	----
8	----	AB12	AB0
9	----	0V	AB1
10	L_DSAD	AB13	AB2
11	----	PLC0	AB3
12	AB19	AB14	AB4
13	----	PLC1	AB5
14	L_RESET	AB15	AB6
15	L_BHE	PLC2	AB7
16	----	AB16	AB8
17	L_BGIN	PLC3	AB9
18	L_BGOUT	AB17	AB10
19	L_LBCLR	PLC4	AB11
20	----	AB18	DB0
21	L_LIR1	0V	DB1
22	----	DB11	DB2
23	----	0V	DB3
24	L_RDYIN	DB12	DB4
25	L_RDY	----	DB5
26	L_WR	DB13	DB6
27	L_RD	0V	DB7
28	CLKCY	DB14	DB8
29	CLK8M	0V	DB9
30	L_DEN	DB15	DB10
31	L_HWEN	----	----

32	DT_L_R	0V	----

8.2. Parallel interface, CS7 - SS4/SS5

X5, X6, X7 (48-pin socket connector to the interface boards)

	A	B	C
1	P5	P5	L_LOCK
2	AB1	AB2	AB3
3	AB4	AB5	AB6
4	AB7	AB8	AB9
5	AB10	AB11	AB12
6	L_RESET	CTCLK	AB13
7	DB0	DB1	DB2
8	DB3	DB4	DB5
9	DB6	DB7	DB8
10	DB9	DB10	DB11
11	DB12	DB13	DB14
12	DB15	L_DEN	L_CSMSB
13	L_INTDPR	DT_L_R	L_CSLSB
14	L_RDYDPR	L_LED1	L_LED2
15	P15	N15	L_INTUHR
16	M5	M5	M5

9. STRUC L mask of the CS7 module in the master program

STRUC L mask

```
100          :CS7                    "Carrier module for interface boards"
101   X01    1N=0                    "1st interface"
102   X02    1N=0                    "2nd interface"
103   X03    1N=0                    "3rd interface"
104    ************************************************************************
```

10. Others

10.1. Attachments

10.1.1. Block diagram

Block diagram Fig. 1

10.1.2. Layout diagram

Layout diagram Fig. 2

10.1.3. Dimension drawing

Dimension drawing 2SE.465 662.9001.00 MB

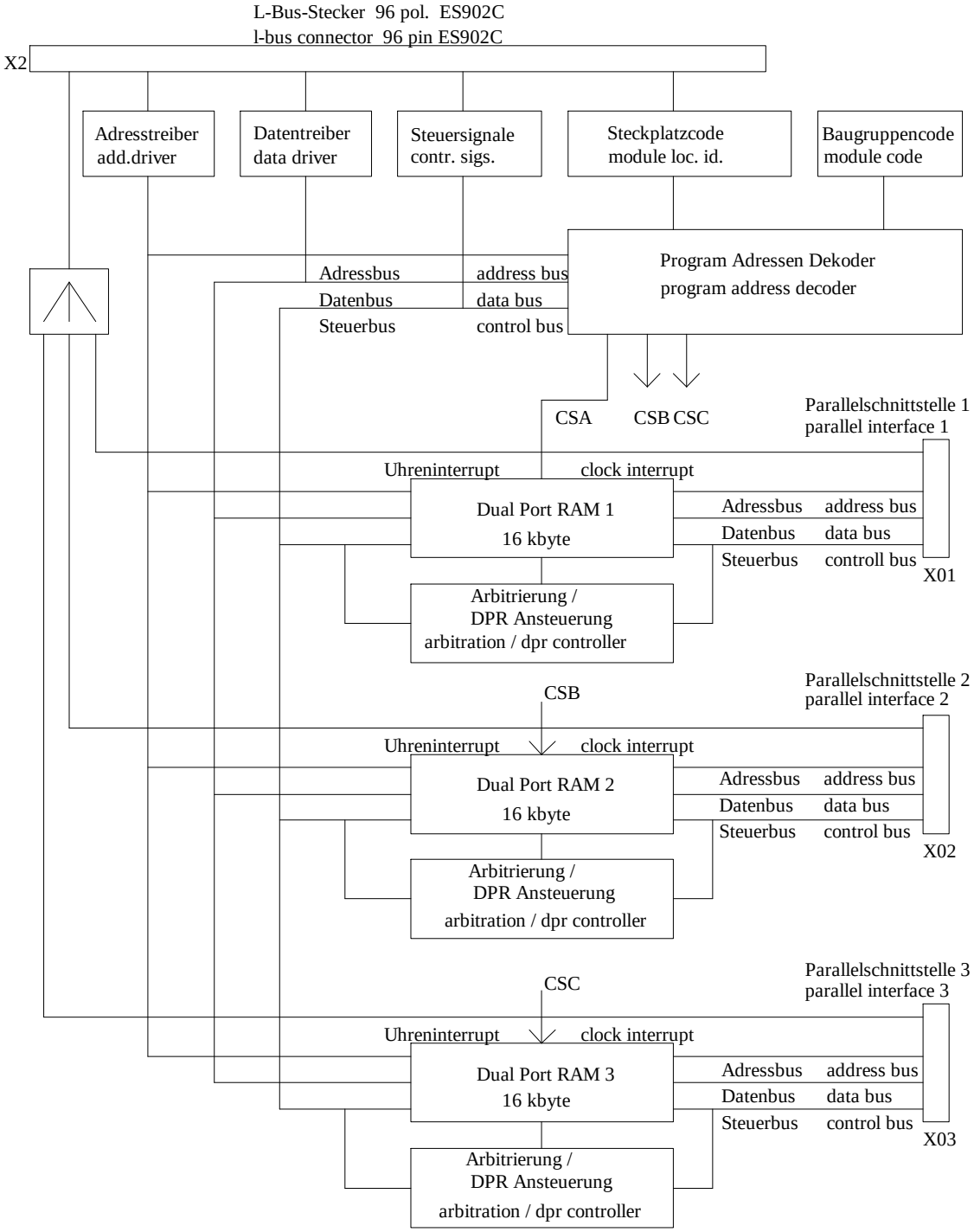


Fig. 1: Block diagram CS7

11. ECB instructions

Components which can be destroyed by electrostatic discharge (ECB)

Generally, electronic boards should only be touched when absolutely necessary.

The human body must be electrically discharged before touching an electronic board. This can be simply done by touching a conductive, grounded object directly beforehand (e.g. bare metal cubicle components, socket outlet protective conductor contact.

Boards must not come into contact with highly-insulating materials - e.g. plastic foils, insulated desktops, articles of clothing manufactured from man-made fibers.

Boards must only be placed on conductive surfaces.

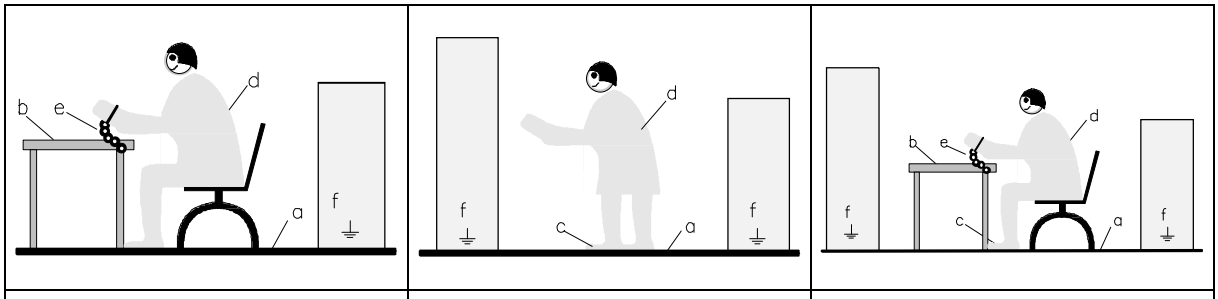
When soldering, the soldering iron tip must be grounded.

Boards and components should only be stored and transported in conductive packaging (e.g. metalized plastic boxes, metal containers).

If the packing material is not conductive, the boards must be wrapped with a conductive packing material, e.g. conductive foam rubber or household aluminum foil.

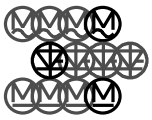
The necessary ECB protective measures are clearly shown in the following diagram.

a = Conductive floor surface
b = ECB table
c = ECB shoes
d = ECB overall
e = ECB chain
f = Cubicle ground connection



Seated	Standing	Standing/sitting

Drives and Standard Products
Motors and Drives Systems Group
Postfach 3269, D-91050 Erlangen



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